

**ENGINEERING CHANGE NOTICE**  
**DART AEROSPACE LTD**

|               |   |          |            |             |           |              |           |        |         |
|---------------|---|----------|------------|-------------|-----------|--------------|-----------|--------|---------|
| Date:         | 12.07.23                                | Job No.: | ENG3116JUL | ADR Yes/No: | Y         | ADR Date:    | 12.07.16  | ECN #: | 12- 624 |
| Product No.:  | D3552-15/-17/-19/-25/-27 (DXXX-802-XXX) |          |            | Created By: | <i>MP</i> | Approved By: | <i>MP</i> |        |         |
| Product Name: | AUTOMATIC DOOR OPENER KITS              |          |            | Checked By: | <i>MP</i> |              |           |        |         |

| Distribution                  | Reqd | Resp  | Initial / Date     | Distribution               | Reqd | Resp  | Initial / Date        |
|-------------------------------|------|-------|--------------------|----------------------------|------|-------|-----------------------|
| Production Manager / Coord.   | Y    | LL/MF | <i>MP 12-07-25</i> | DQA / QA Coord.            | Y    | PS    | <i>SRR 1208/13</i>    |
| Purchasing Coord.             | Y    | CL    | <i>CL 1208/08</i>  | QC Coordinator             | Y    | ED    | <i>ED 120725</i>      |
| Production Engineering Coord. | Y    | DD    | <i>PD 12.07.25</i> | Customer Technical Support | Y    | DS    | <i>DS 1208/13</i>     |
|                               |      | EC    |                    | Marketing                  | Y    | SW/LM | <i>SW/LM 12-07-25</i> |
|                               |      |       |                    | Customer Order Processing  | N    |       |                       |

**Reason for Change:**  
PER PAR12-209, REVISION OF D3552 TO REV. K TO ADD "X" FOR "EXTRA DAMPING" TO GAS SPRING OF AUTOMATIC DOOR OPENER KITS

**Documents Affected:**  
RELEASE D3552 REV. K

**PAPERWORK UPDATE**  **PARTS MUST COMPLY**  **PREVIOUS PARTS SATISFACTORY**

| # | Quality Assurance Actions | Reqd | Resp | Notes          | Complete        |
|---|---------------------------|------|------|----------------|-----------------|
| 1 | Notify Previous Customers | Y    | MB   | PER PAR12-209. | <i>12.07.25</i> |
| 2 | Notify Eurocopter France  | N    |      |                |                 |
| 3 |                           |      |      |                |                 |

| # | Engineering Actions                      | Reqd | Resp | Notes               | Complete        |
|---|--|------|------|---------------------|-----------------|
| 4 | Required Documents/Drawings Under Review | N    |      |                     |                 |
| 5 | Update Master Document List (MDL)        | Y    | MB   | MDL-D407-802 Rev. G | <i>12.07.25</i> |
| 6 | Update Product Compatability Matrix      | N    |      |                     |                 |
| 7 | Create Eurocopter Form (FEE)             | N    |      |                     |                 |
| 8 | Notify TC / FAA of Change                | N    |      |                     |                 |
| 9 |  |      |      |                     |                 |

| #  | Document Control Actions                                | Reqd | Resp | Notes      | Complete        |
|----|---|------|------|------------|-----------------|
| 10 | Move Electronic Files/Design Journal                    | Y    | KJ   |            | <i>12.07.24</i> |
| 11 | Update Product Specification Files                      | N    |      |            |                 |
| 12 | Update Approved/Preliminary Dwg PDF Files               | Y    | KJ   |            | <i>12.07.24</i> |
| 13 | Update Document Record (DR)                             | N    |      |            |                 |
| 14 | Update Product Development Summary                      | N    |      |            |                 |
| 15 | Update QSI 021 and/or STC Approval List                 | N    |      |            |                 |
| 16 | Create/Update Parts / STC Database                      | Y    | KJ   | AS REQ'D   | <i>N/A</i>      |
| 17 | Update / Verify ARC Database                            | Y    | KJ   | AS REQ'D   | <i>N/A</i>      |
| 18 | Create / Update Change Record Form / Item Card Database | Y    | KJ   | SEE BELOW. | <i>12.07.25</i> |
| 19 | Create / Update PPP's                                   | Y    | KJ   | AS REQ'D   | <i>12.07.25</i> |
| 20 | Red Decals required?                                    | N    |      |            |                 |
| 21 | Update Document Control Database / Laminated Dwgs       | N    |      |            |                 |
| 22 | Update Grey Project / Electronic Binder PDF Files       | Y    | KJ   | WITH ADR   | <i>12.07.24</i> |
| 23 | Update D-Part/M-Drawing/DSI/DEO Master Binders          | Y    | KJ   |            | <i>12.07.24</i> |
| 24 |   |      |      |            |                 |

**Description / Action:**  
D407-802-011/-012/-013/-014/-015/-017/-018/-019/-111/-113/-115/-117/-211/-213/-215 NOW @ CHG 002  
D206-802-021/-022/-023/-025/-027/-028/-029/-030/-031/-033/-119/-121/-123/-125/-127/-129/-131/-133/-135 NOW @ CHG 002  
D206-802-032 NOW @ CHG 004  
DSI 9579-011 NOW @ CHG 003 AND DSI 9586-011/-013 NOW @ CHG 002

REVISE ALL BOM'S/ROUTES FOR D3552-15/-17/-19/-25/-27.  
HAVE ALL D3552-15/-17/-19/-25/-27 IN STOCK, INCLUDING ALL D3552-15/-17/-19/-25/-27 OF ABOVE KITS IN STOCK REWORKED (OR EXCHANGED)  
BY MAKING ARRANGEMENT WITH NOLAN FEHR @ LS TECHNOLOGIES. SEE ATTACHED EMAIL.

NOTE: IT MIGHT BE NECESSARY TO CHANGE INSPECTION METHOD FOR RECEIVING OF D3552-15/-17/-19/-25/-27 GAS SPRING TO ENSURE  
EXTRA DAMPING FEATURE.

CLOSE PAR12-209.

ECN Verified & Complete: *MP*

Date: *12/8/13*

## Marc Bellavance

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**From:** LS Technologies Inc <info@lstechnologies.ca>  
**Sent:** Friday, July 06, 2012 11:24 AM  
**To:** Marc Bellavance  
**Subject:** Re: IIN-D407-802-1-RevA Page8

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Marc,

For the gas springs you would like with extra dampening lets use the X added to the end of the part number. This is currently the annotation we use for added dampening.  
For your stock you can return it and we will either rework or exchange them to provide the extra dampening.

Thanks,  
Nolan Fehr

Please note LS Technologies will be closed for our July shutdown : **July 11 - 13 & July 23 - 27th.**

LS Technologies Inc  
314 Jessop Ave  
Saskatoon, SK S7N 1Y6  
Canada  
Tel: 306-683-5000  
Canada/USA Toll free: (888) 878-0837  
Fax: 306-683-6403  
email: [info@lstechnologies.ca](mailto:info@lstechnologies.ca)

On 7/06/12 6:41 AM, Marc Bellavance wrote:

Hi Nolan,

Hope this finds you well.

We (Dart and our customer) are happy with the gas spring samples with extra dampening you provided to us just about two weeks ago. We would like to change our D3552 drawing to call for extra dampening on D3552-15/-17/-19/-25/-27. We're thinking that this should be reflected by adding "W/EXTRA DAMPENING" to the description but we also feel like the LS Technologies P/N should be changed as well to reflect that and ensure we get the extra dampening on the gas springs listed previously. Can you please provide new P/N's?

Currently the part numbering is as follows:

| Dart P/N | LS Technologies P/N |
|----------|---------------------|
| D3552-15 | B8-154-387-300N     |
| D3552-17 | B8-154-387-156N     |
| D3552-19 | B8-154-387-060N     |
| D3552-25 | B8-148-475-300N     |
| D3552-27 | B8-148-475-156N     |

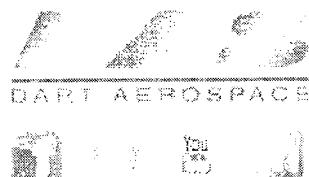
Perhaps your new P/N's could be completely different or changed to something as simple as adding an "X" to designate "extra dampening"?

| Dart P/N | LS Technologies P/N |
|----------|---------------------|
| D3552-15 | B8-154-387-300NX    |
| D3552-17 | B8-154-387-156NX    |
| D3552-19 | B8-154-387-060NX    |
| D3552-25 | B8-148-475-300NX    |
| D3552-27 | B8-148-475-156NX    |

Please let me know. As I understand this, engineering wants to make the change asap on our drawing.

Also, can the D3552-15/-17/-19/-25/-27 we have in stock be reworked? If this can be done, we will have to initiate shipping of the gas springs to your facility and to your attention?

Best regards,



**Marc Bellavance**

Technical/Shop Support

T. 613-632-5200 | C. 613-676-0992 | F. 613-632-9311

1270 Aberdeen Street, Hawkesbury, Ontario, Canada, K6A 2K7

**Product Documentation: Verify Revision Status/Download [HERE!](#)**

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**From:** LS technoloies Inc [<mailto:info@lstechnologies.ca>]

**Sent:** Friday, June 22, 2012 3:38 PM

**To:** Marc Bellavance

**Subject:** Re: IIN-D407-802-1-RevA Page8

Marc,

I will prepare these parts and I will advise part numbers on Monday AM.

To confirm you want :

1 x D3552-15 @ 300N with additional dampening

1 x D3552-15 @ 230N with additional dampening

Total 2 items.

Thanks,

Nolan Fehr

LS Technologies Inc  
314 Jessop Ave  
Saskatoon, SK S7N 1Y6  
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email: [info@lstechnologies.ca](mailto:info@lstechnologies.ca)

On 6/22/12 11:35 AM, Marc Bellavance wrote:

Nolan,

That is great! Can we also get a D3552-15 with that extra dampening so we can compare with one with no extra dampening? If this can be worked out, we will order one each:

- Gas spring. Stroke: 154 mm/6.06" – Extended Length: 387 mm/15.2" – Force: 300 N/67.4 lb – End Fitting: 10mm Nylon Ball Socket – Material: Carbon Steel – Additional Feature: Extra Dampening;
- Gas spring. Stroke: 154 mm/6.06" – Extended Length: 387 mm/15.2" – Force: 230 N/51.7 lb – End Fitting: 10mm Nylon Ball Socket – Material: Carbon Steel – Additional Feature: Extra Dampening.

For simplicity, let me know if you have a P/N for those and Chantal will follow up with a PO.

Cheers,



**Marc Bellavance**  
Technical/Shop Support  
T. 613-632-5200 | C. 613-676-0992 | F. 613-632-9311  
1270 Aberdeen Street, Hawkesbury, Ontario, Canada, K6A 2K7

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**From:** LS technologies Inc [mailto:[info@lstechnologies.ca](mailto:info@lstechnologies.ca)]  
**Sent:** Friday, June 22, 2012 12:51 PM  
**To:** Marc Bellavance  
**Subject:** Re: IIN-D407-802-1-RevA Page8

Marc,

We can set up a modified gas spring with additional dampening with a force setting of 230-250N for trial.

Please let me know if you would like to proceed.  
We could ship this test unit on Monday.

Thanks,  
Nolan Fehr

LS Technologies Inc  
314 Jessop Ave  
Saskatoon, SK S7N 1Y6  
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email: [info@lstechnologies.ca](mailto:info@lstechnologies.ca)

On 6/22/12 8:50 AM, Marc Bellavance wrote:

Hello again Nolan,

Thanks for taking my phone call and offering your expertise.

Please find attached page from our installation instructions. The gas spring seems to be working well on heavy aircraft doors (i.e. aluminum doors) but too strong for light doors (i.e. composite). Our customer is complaining, with reasons, that the D3552-15 is too strong. Opening of the door is too fast and comes to an abrupt end when the gas spring reaches its fully extended length which will result eventually in damaging the aircraft airframe. Ideally, the gas spring would probably needs to be rated for 230-250 N with a built-in dampening feature.

Best regards,



**Marc Bellavance**

Technical/Shop Support

T. 613-632-5200 | C. 613-676-0992 | F. 613-632-9311

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Your message is ready to be sent with the following file or link attachments:

IIN-D407-802-1-RevA Page8

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